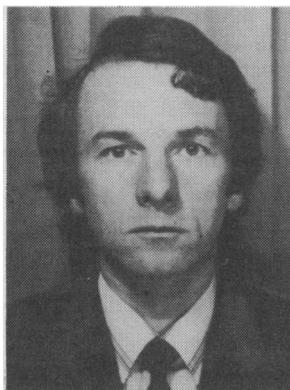
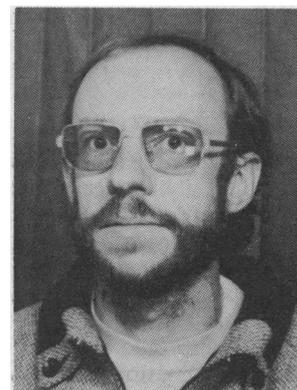


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FIRST TIME MARATHONERS AND DISTANCE TRAINING

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INTRODUCTION

As the marathon boom continues, more people are becoming interested in finding out how to prepare, train for and run marathons. As an acknowledgement of this, many race organisers provide training schedules for prospective marathoners at the time of application.

A commonly held view in marathon training is that preparation should involve running exceptionally long distances each week. Training schedules often suggest distances of 50 to 60 miles per week for the last eight weeks prior to the race. Pollock (1977) indicates that some élite marathoners average over 100 miles per week in their build-up to a race, whilst Shelley and Donovan (1982) suggest an average of 44 miles per week for the novice marathoner in the 12 weeks preceding the race. Humphries and Holman (1983) indicate even higher mileages for the marathoner. One of the reasons for this is probably connected with what Young (1978) has coined 'the collapse point theory' which predicts a dramatic slow down in the latter part of a race if there has been insufficient distance training. Young hypothesises that a runner must cover at least 63 miles per week over the eight weeks prior to a race in order to avoid the collapse point. A runner who trains less than this, e.g. around 40 miles a week, should expect to be reduced to a 'shuffle' around 18 miles into the run. This view is further supported by Frederick (1978) quoted by Henderson who argues that a marathon should not be contemplated unless 40 miles per week have been covered for the previous eight weeks. Frederick

concludes that the last 6-8 miles will be difficult but runners will probably battle through to the finish. Glover and Shepherd (1977) propose a similar training distance (40 to 45 miles per week) and add a cautionary note that this amount of training will still not help the runner avoid "hitting the wall" between 15 and 20 miles.

Training is clearly a personal matter and the distance run during training will depend upon a multitude of factors including the experience and skill of the runner as well as his motivation and aspirations. However, the arguments given above place great weight on training and distance training in particular — apparently regardless of novice or expert. To examine the validity of this recommendation it was decided to observe the training patterns of a large number of first-time marathoners.

SAMPLE

Preceding the 1982 Glasgow Marathon, a seminar on training for first-time marathoners was held at Glasgow University. Of the 225 people who attended a total of 88 men and women provided information on their training schedules prior to the marathon. Certain anthropometric and experiential data were also collected to provide as comprehensive a picture as possible. The 88 runners were self selected in as much as they were the seminar delegates who decided to take on the challenge of the marathon and also keep a precise record of all the data, times and distances requested at the start of the survey. The total would have been a little higher had not

16 people failed to enter the race through injury, illness, etc. The mean age, standard deviation and age range were 36.9 yrs \pm 9.7 yrs and 18 to 70 yrs respectively.

RESULTS AND DISCUSSION

A number of variables were requested of each runner including their race time and mean training mileage during the last 12 weeks of training. When correlated, these two gave a correlation coefficient of -0.38 (Fig. 1). Whilst this value is significantly different from zero ($p < 0.001$) and also in the direction of better marathon time with increased training it is still very low when interpreted as a prediction coefficient (coefficient of determination = 14%). Overall, the 88 runners averaged 37.2 miles per week (s.d. = 11.1 miles) during the last 12 weeks of training.

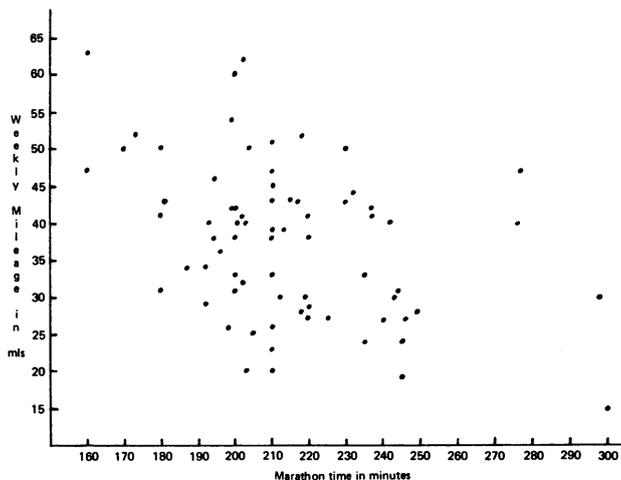


Fig. 1: Scattergram showing relationship between marathon time and average weekly mileage.

These findings indicate two things about the training of novices embarking on their first marathon. Firstly, in order to complete the marathon distance there is no need to put in exceptional weekly mileages during training. Certainly not the kinds of distances suggested by race organisers and other authorities (e.g. Young, 1978). Cannon (1983) supports the notion of moderation in training and Maughan and Miller (1983) raise the issue of injuries in training. Their evidence shows clearly that runners preparing for a marathon can expect their training to be interrupted by injury. Thus from an injury point of view it would appear reasonable to suggest that it is not desirable to attempt and maintain weekly mileages in the order of 50 to 60 miles. It is of note that in the present case, 74% of all runners complained of some kind of over-use injury even though the average mileage rate was just 37 miles.

The second conclusion is that weekly mileage during training is a poor predictor of marathon performance. Franklin et al (1978) found very much the same and in explaining this they point to the importance of the many psychological, genetic and lifestyle factors which contribute to performance (e.g. many runners also take part in other sports such as cycling and walking which influence their fitness and attitude to racing). A factor which is possibly more important than mileage per se is running speed duration training. A stepwise multiple regression analysis which included a number of speed, distance and anthropometric variables showed cruising speed during 6 to 10 mile training runs to be a limited predictor in accounting for over 35% of the variability in race times and that none of the other possible explanatory variables had any extra information to predict race time.

A second analysis focussed on Young's theory of dramatic slow-down when training distances are low. Of the 88 runners 74 recorded their 20 mile time in the marathon thereby enabling calculation of the percentage of the race time accounting for the last 6.2 miles of the race. According to Young there should be a negative relationship between this value and weekly training mileage, i.e., the shorter the weekly mileage the longer the proportion of time spent running the final 6.2 miles. The correlation coefficient between the two was in fact 0.14 showing a very poor, if any, relationship. In fact, the average time recorded for the last 6.2 miles (25.6% of the race time) was only marginally longer than what would be expected (6.2 miles is 23.7% of the overall distance), which indicates little decrease in pace over the latter part of the race. These findings argue against both Young's and Glover and Shepherd's contention that training mileages less than 40 to 45 miles will result in severe difficulties during the last few miles.

A final analysis looked at the accuracy of the runner's ability to predict his marathon time. A prediction time was requested on each of three days, namely the day of the conference and a day later, as well as on the day before the marathon. The correlations between each prediction and actual time are shown in Table I. The second prediction is better than the first as would be expected if the conference had provided runners with valuable information, but both are still very low. This points to the inability of first-time marathoners to predict their race time and also indicates that marathon organisers who ask entrants for a predicted time may expect considerable inaccuracies from those embarking on their first marathon. The third prediction is much better indicating that training experience gives the runner a much better idea of his capabilities. This would suggest that, where practical, race organisers should allow runners to select their own position on the starting grid at the beginning of the marathon!

TABLE I

Correlation coefficients between predicted and actual marathon times.

Time of Prediction	Correlation
Day of the seminar	0.368
Day after the seminar	0.464
Day before the race	0.845

CONCLUSIONS

It is important to stress that the findings of the present study were based on the experiences of first-time marathoners and so may only apply to this group of people. Investigations are in progress to examine the training patterns of experienced runners. Three observations can be made:

1. First-time marathoners do not need to run exceptional mileages during training, and do not suffer dramatic slow down in the latter stages because of their moderate training.
2. There is no practical relationship between average weekly training mileage and race time for novices at least.

3. First-time marathoners are able to predict their race time better near the day of the race, compared with when they first begin training.

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BOOK REVIEW

Title: CHILDREN AND SPORT
Author: J. Ilmarinen and I. Välimäki (Eds.)
Publisher: Springer-Verlag: Berlin, 1984
Price: \$27.70

Children and Sport is a collection of 33 papers given at the tenth Symposium of the European Group for Paediatric Work Physiology which took place in Joutsa, Finland, 1981. The papers are divided into four main sections: Growth, Development and Physical Activity; Physical Working Capacity; Physical Training and Sports; Physical Activity and Health. In section one, the emphasis is on the growth and development of children's motor ability in relation to habitual and required physical activity. There is, inevitably, a certain degree of overlap between sections in terms of the topics under consideration, and this is the case with the first paper in section one which deals with the growth and development of children's capacity for endurance performance. As such, this paper might have been better placed in section two which is largely concerned with cardiorespiratory functioning. Among the topics under consideration in section two are the effects of maturation and growth on cardiorespiratory (C-R) fitness, the effects of environmental temperature on C-R functioning, and the estimation of C-R fitness using different treadmill tests. Section three is largely concerned with the effects of specific forms of physical training and/or physical education on C-R functioning, although the section also includes a very interesting paper on the psychosocial problems associated with sports training during childhood. The emphasis in the last section is on the incidence of cardiovascular risk factors in children and adolescents. In general, the papers are well-written and provide a lot of new information. Different sections of the book will certainly be of interest to teachers and researchers in the fields of health, physical education and sport, and to all sports coaches in charge of child athletes.

J. Watkins